

**Amendment and Response**

Applicant: N. Lee Rhodes

Serial No.: 09/919,527

Filed: July 31, 2002

Docket No.: 10013111-1

Title: NETWORK USAGE ANALYSIS SYSTEM AND METHOD FOR UPDATING STATISTICAL MODELS

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**REMARKS**

The following remarks are made in response to the Office Action mailed December 6, 2004. Claims 1-45 were rejected. With this Response, claims 1, 5, 13, 23-26, 29, 36, 37 and 45 have been amended. Claims 46 and 47 have been added. Claims 1-47 remain pending in the application and are presented for reconsideration and allowance.

**Claim Rejections under 35 U.S.C. § 112**

Claims 25, 26, 27 and 28 are rejected under 35 U.S.C. 112, second paragraph, based on insufficient antecedent basis. With this Response, Applicant has corrected the dependency of dependent claims 24, 25, and 26. Applicant believes this change results in a correction of the antecedent basis errors as outlined by the Examiner. Accordingly, Applicant requests that the above rejection of claims 25, 26, 27, and 28 under 35 U.S.C. § 112, second paragraph, be withdrawn.

**Claim Rejections under 35 U.S.C. § 102 and § 103**

Claims 1-2, 37-28, and 45 are rejected under 35 U.S.C. 102(e) as being anticipated by Porras et al., U.S. Patent No. 6,321,338 (Porras).

Further, claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porras et al. and further in view of Sarkissian et al., U.S. Patent No. 6,771,646 (Sarkissian et al.). Claims 23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porras and in view of Sarkissian and further in view of Kawasaki, U.S. Patent No. 6,539,375 (Kawasaki) and Fishman et al., U.S. Patent Application Publication No. 2001/0037321 (Fishman). Claims 29, 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porras and in view of Sarkissian and further in view of Fishman et al. and Costa, U.S. Patent No. 6,138,121 (Costa). Claims 3 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porras as applied to claims above, and further in view of Steinbiss et al., U.S. Patent No. 6,823,307 (Steinbiss). Claims 4 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porras and Steinbiss as applied to claims above, and further in view of Sarkissian. Claims 5-6, 12, and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porras, Steinbiss, and Sarkissian as applied to claims above, and further in

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view of Costa. Claims 7, 11, 14-22, and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porras, Steinbiss, Sarkessian, and Costa as applied to claims above and further in view of Aboulnaga et al., U.S. Patent No. 6,460,045 (Aboulnaga). Claims 8-10, 30, and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porras, Steinbiss, Sarkessian, and Costa as applied to claims above, and further in view of Fishman.

Applicant has amended independent claims 1, 13, 23, 29, 37 and 45 to include claim limitations similar to those found in independent claim 23. Accordingly, only the claim rejections under 35 U.S.C. § 103 are discussed in detail herein.

**Applicant submits that Porras either alone or in view of Sarkessian, Kawasaki, Costa and Fishman fail to teach or suggest the invention of independent claim 1.**

Independent claim 1 has been amended to recite a method for analyzing a stream of network usage data. The method includes generating a statistical model from a set of usage data record events. A most recent record event is received. The statistical model is updated using the most recent record event by adding the most recent record event to the statistical model, wherein an identifier is associated with each record event, including updating only a portion of the statistical model associated with the identifier.

**Porras** discloses a method of network surveillance including building at least one long-term and at least one short-term statistical profile of network packets that monitor data transfers, errors, or network connections. The long-term profile is compared to the short-term profile to determine whether suspicious network activity exists. See Porras, column 1, lines 44-54.

**Sarkessian** merely recites the cache structure for looking up one or more elements of an external memory. The cache structure is used for storing information associated with network packets.

**Costa** merely discloses the use of an aggregation table in tracking network status events.

**Kawasaki** discloses a method and system for generating and using a computer user's personal interest profile.

**Fishman** recites a method of building predictive models on transactional data. In the system of Fishman, sets of aggregation models are utilized, wherein each transactional source

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of data is processed by a dedicated aggregation module. When a new transactional record becomes available the output of the model is updated by processing the new records only associated with a dedicated aggregation module. The output of each aggregation module is an array of scalar numbers that can be used as an input to a traditional modeling module. See Fishman, paragraph [008].

Applicant submits that Porras, either alone or in view of Sarkissian, Kawasaki, Costa, and Fishman fail to disclose the invention of independent claim 1. As conceded by the Examiner, Porras, Sarkissian, Costa, and Kawasaki fail to disclose **updating a statistical model using the most recent record event by adding the most recent record event to the statistical model, wherein an identifier is associated with each record event, including updating only a portion of the statistical model associated with the identifier.** Further, Fishman also fails to teach or suggest **an identifier associated with each record event, including updating only a portion of the statistical model associated with the identifier.** Fishman merely recites a method of building predictive models on transactional data where each transactional source is processed by a dedicated aggregation module. The output of aggregation modules are saved, such that when new transactional records are available the output of the model is updated by processing only new records. The records are then fed into the traditional module. In contrast, Applicants method includes generating **a statistical model from a set of usage data record events. An identifier is associated with each record event. A most recent record event is received. The statistical model is updated by updating only a portion of the statistical model associated with the identifier.** Again, Fishman fails to disclose **updating only a portion of the statistical model associated with an identifier.** As such, one could not combine the teachings of Porras, Sarkissian, Costa, Kawasaki, and Fishman, and arrive at the invention of independent claim 1. For similar reasons, Applicant submits that independent claims 1, 13, 23, 29, 37 and 45 are also allowable over the art of record.

Dependent claims 2-12, 14-22, 24-28 and 38-44 depend directly or indirectly upon corresponding independent claims 1, 13, 23, 37 and 45. Accordingly, Applicant believes these dependent claims to also be allowable over the art of record.

**Further, Applicant submits that none of the cited references, either alone or in**

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**combination teach or suggest the invention of amended independent claim 29.** None of the cited references teach or suggest **defining a statistical model for analyzing the stream of network usage data over the rolling time interval, including a histogram having a first axis illustrating total usage defined by a number of bins, each bin having a usage variable range, and a second axis defined by a frequency corresponding to a number of users having a total usage within the usage variable range of each bin.** Further, none of the cited references, either alone or in combination, recite **generating the statistical model over the rolling time interval using each record event stored in the history cache including generating an aggregation table, and updating the statistical model using a most recent record event for a most recent update time interval including updating only a portion of the aggregation table associated with the most recent update time interval.** In view of the above, Applicant submits that the above rejection of independent claim 29 under 35 U.S.C. § 103 should be withdrawn.

Dependent claims 30-36 depend either directly or indirectly upon independent claim 29. Accordingly, Applicant believes these dependent claims to also be allowable over the art of record.

**Added Claims**

With this Response, Applicant has added claims 46 and 47 directed to a method of analyzing network usage data. Applicant believes independent claims 46 and 47 to be allowable over the art of record.

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**CONCLUSION**

In view of the above, Applicant respectfully submits that pending claims 1-47 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 1-47 is respectfully requested.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to either William J. Streeter at Telephone No. (970) 898-3886, Facsimile No. (970) 898-7247 or Steven E. Dicke at Telephone No. (612) 573-2002, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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Respectfully submitted,

N. Lee Rhodes,

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**CERTIFICATE UNDER 37 C.F.R. 1.8:** The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope address to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 7 day of March, 2005.

By Steven E. Dicke  
Name: Steven E. Dicke